

R-613A



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: February 9, 1989

In reply refer to: R-89-5

Mr. Louis T. Cerny
Executive Director
American Railway Engineering
Association
50 F Street, N.W.
Washington, D.C. 20001

About 12:36 p.m. eastern standard time on January 29, 1988, northbound National Railroad Passenger Corporation (Amtrak) train 66, The Night Owl, struck maintenance-of-way equipment on track 2 in Chester, Pennsylvania. The engineer of train 66 received serious injuries, and 8 crewmembers and 15 passengers received minor injuries. The estimated damage as a result of this accident was \$3,397,215.¹

On January 28, 1988, track 2 north of Hook interlocking was taken out of service so that it could be occupied by on-track maintenance equipment and work crews. The Safety Board determined that the procedures used by all parties to take the track out of service were in accordance with Amtrak rules and instructions.

In 1977, Amtrak adopted a policy to purchase insulated nonshunting maintenance-of-way equipment because a positive contact was not always provided between the rails and the wheels of some of the lighter weight maintenance equipment and, thus, no electrical shunt. Thus, the interaction of such equipment with the automatic block signal system was not reliable. Because the shunt was not reliable, segments of the railroad industry believed that it would be safer to insulate the equipment so that operating and maintenance personnel would know there was no signal protection. Hence, operating and maintenance personnel would not develop a false sense of security which would cause them to become complacent about their adherence to other safety

¹For more detailed information, read Railroad Accident Report--"Collision of Amtrak Train 66, The Night Owl, with On-Track Maintenance-of-Way Equipment, Chester, Pennsylvania, January 29, 1988" (NTSB/RAR-89/01).

measures. The Safety Board believes that the protection provided by the automatic block signal system is essential to the prevention of human error-induced accidents.

The Safety Board is aware that other railroads use shunting maintenance-of-way equipment and still retain independent out-of-service track procedures for protecting trains from collision with maintenance equipment. The Board believes that the policy of using noninsulated equipment is preferable and that employee complacency can be avoided by aggressive management supervision. Accordingly, the Board is pleased that as a result of this accident, Amtrak's newly purchased maintenance-of-way equipment will be noninsulated and that existing equipment will be modified to provide a rail-to-rail shunt as other shop maintenance is being performed.

Until such time that a reliable level of protection against out-of-service track intrusions can be ensured through the use of noninsulated equipment and positive shunting devices, the protection will depend solely on procedural rules. In fact, the Safety Board believes that Amtrak's operating rules and instructions for protection of on-track maintenance equipment should always be considered as the primary safety measure. Therefore, to the extent possible, the procedures should be designed so that there is minimum chance of human error.

The protection to prevent trains from intruding onto out-of-service track can, under some circumstances, be provided by shunting the track using barricades so that the automatic block signal system will function. However, postaccident testing of track barricades used by Amtrak to provide shunt protection demonstrated that even if these barricades were properly applied, they would not provide a reliable shunt. The failure of the track barricade to effectively shunt the signal circuitry during the testing was an indication that the track barricade should not, in its present design, be used to provide shunt protection for employees working on out-of-service track.

Further, the track foreman involved in the work at Hook interlocking at the time of the accident had not received any instructions on the use of barricades, and he was unaware of existing requirements for their use. Testimony also noted that the use of track barricades is not intended to provide protection for the movement of on-track equipment to and from the work site, such as the movement of the ballast regulator. However, the Safety Board believes that the technology exists for Amtrak to redesign and provide a positive shunting device for the protection of maintenance-of-way employees when working with on-track equipment on out-of-service track. Until such change is made to provide a track barricade that does effectively shunt, the instructions for use of the barricade should not indicate that it is possible to use it as a shunting device. The Safety

Board has urged Amtrak management to take actions to instruct maintenance-of-way personnel on the required use of barricades. Also, the Board urges the American Railway Engineering Association to provide in its manual of recommended practices guidelines for positive shunting of signal circuitry by on-track, maintenance-of-way-machinery.

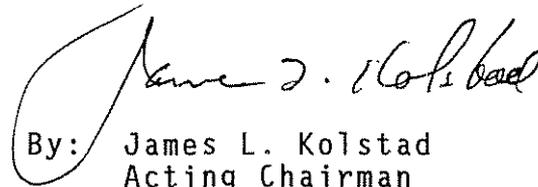
Therefore, the National Transportation Safety Board recommends that the American Railway Engineering Association:

Determine methods to provide for positive shunting of signal circuitry by on-track, maintenance-of-way machinery, and include these methods in the manual of recommended practices.
(Class II, Priority Action) (R-89-5)

Also, the Safety Board issued Safety Recommendations R-89-1 through -4 to the National Railroad Passenger Corporation

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation R-89-5 in your reply.

KOLSTAD, Acting Chairman, and BURNETT, LAUBER, NALL, and DICKINSON, Members, concurred in this recommendation.


By: James L. Kolstad
Acting Chairman